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9209L050-WES-832

ROY F. WESTON, INC.  
Lionville Laboratory

RECEIVED COPY

CLIENT: WESTINGHOUSE HANFORD

SAMPLE(S) RECEIVED: 09-28-92

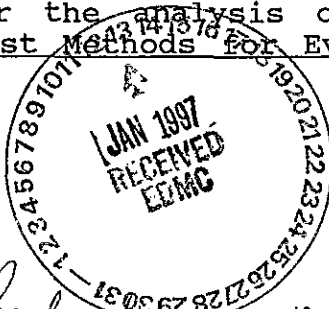
RFW #: 9209L050

W.O. #: 6168-02-01-9999

INORGANIC NARRATIVE

The following is a summary of the quality control results and a description of any problems encountered during the analysis of this batch of samples:

1. All sample holding times as required by 40CFR136 were met.
2. All preparation blank results were below the required detection limit.
3. All calibration verification checks were within the required control limits of 90-110%. Calibration verification is performed using independent standards.
4. Matrix spike recoveries are summarized on the Inorganic Accuracy Report contained within this document. All recoveries were within the 75-125% guidance limits. All %RPD were within the 20% guidance limit.
5. Replicate results are summarized on the Inorganic Precision Report contained within this document. All results were within the 20% RPD guidance limit.
6. The analytical methods applied by the laboratory, unless otherwise requested, for all inorganic analyses are derived from the USEPA Method for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020) and Standard Methods for the Examination of Water and Wastewater 16 ed. Methods for the analysis of solid samples are derived from Test Methods for Evaluating Solid Waste (USEPA SW846).



*Margaret M. Beatty*  
J. Peter Hershey, Ph.D.  
Laboratory Manager  
Lionville Analytical Laboratory

10/8/92  
Date

X01618 PACKAG 92098050 100-14-4

**OFFICE OF SAMPLE MANAGEMENT**  
**RECORD OF DISPOSITION**

ROD-93-0023  
Record of Disposition No.

DATE: 2/1/93

LABORATORY: WESTON

PROJECT TITLE/NO.: 100FR3, 92-307, 92-304, 100KR1, 92-294, 92-311, 100DR1

NCR NO.: N/A

**SAMPLE IDENTIFICATION NUMBERS:**

B075L6, B07269, B07270, B07259, B07261, B07247, B07232, B06D87, B01925, B07273, B07274, B07275

**DESCRIPTION OF EVENT:**

Samples contain a large percentage of rock.

**DISPOSITION OF SAMPLES:**

With consent by all project managers, put samples through sieve and proceed with analysis on remaining sample amounts.

**APPROVAL SIGNATURES:**

Clay Smith / *Clayton Smith*

2/1/93

OSM Project Coordinator (Print/Sign Name)

Date

ORIGINAL ROD LOST

W. E. STROHBEY

W. E. *Stroh*

3/9/93

A. D. Krug / *A. D. Krug*

~~W. T. Stankovich, A. L. Prignano, C. E. Heiden/~~

3/9/93

Technical Representative (Print/Sign Name)

Date

N/A

Quality Assurance (Print/Sign Name)

Date

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ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 10/07/92

CLIENT: WESTINGHOUSE HANFORD  
WORK ORDER: 6168-02-01-9999

WESTON BATCH #: 9209L050

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-001	BO1925	% Solids	98.5	%	0.10
		Chromium VI	0.10 u	MG/KG	0.10

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ROY F. WESTON INC.

INORGANIC PRECISION REPORT 10/07/92

CLIENT: WESTINGHOUSE HANFORD

WESTON BATCH #: 9209L050

WORK ORDER: 6168-02-01-9999

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	%RPD
=====	=====	=====	=====	=====	=====
-001REP	BO1925	% Solids	98.5	98.4	0.12
		Chromium VI	0.10u	0.10u	NC

Page 1 of

Discrepancies Between  
Samples Labels and  
COC Record? Y or **N**  
NOTES:

Westinghouse Hanford  
Company

CHAIN OF CUSTODY 003033

Custody Form Initiator L. GUERRA / R. ARNOLD

Company Contact K.N. POOL / C.E. HEIDEN

Telephone 376-2640

Project Designation/Sampling Locations SAF#92-311

Collection Date 9-24-92

SODIUM DICHROMATE BARREL. LOCATION 100-IU-4

Ice Chest No. 167

Field Logbook No. WHC-N-205-19

Bill of Lading/Airbill No. 752 156 7917

Offsite Property No. \_\_\_\_\_

Method of Shipment SAMPLE DOUBLE BAGGED PLACED IN WET ICE. AIR FRIEGHT.

Shipped to WESTON LAB, LIONVILLE PA 19341

Possible Sample Hazards/Remarks UNKNOWN

SEE SAMPLES ANALYSIS REQUEST FOR INDIVIDUAL CONTAINERS AND ANALYSIS.

Sample Identification

B01925 (3) BOTTLES

**PRIORITY TURNAROUND**

☐ Field Transfer of Custody

CHAIN OF POSSESSION

(Sign and Print Names)

Relinquished by: L. GUERRA

Received by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_

Received by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_

Received by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_

Received by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Final Sample Disposition

Disposal Method: \_\_\_\_\_

Disposed by: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Comments: \_\_\_\_\_

9209L 050



AIR OVERNIGHT/SATURDAY DELIVERY

Contractor WESTINGHOUSE HANFORD	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT) 1000 - 1114-1114
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PART I - TO BE COMPLETED BY ORIGINATOR

Department PROCESSING & ANALYTICAL LAB	Section ANALYTICAL CHEMISTRY	Unit SAMPLING & MOBILE LAB
The following items are to be shipped from <input checked="" type="checkbox"/> Contractor <input type="checkbox"/> Vendor		
Routing <input checked="" type="checkbox"/> EMERY AIR EXPRESS <input checked="" type="checkbox"/> Contractor <input type="checkbox"/> Vendor		
Shipped to WESTON LAB 208 Welsh Pool Road Lionville, PA 19341		Off-site Custodian JOSIE KING Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1	POLYCOOLER. SAMPLES PACKED IN PLASTIC BAGS AND STORED ON WET ICE.  SAMPLE #B01925  WEIGHT <u>5716</u> COOLER # <u>167</u>	

☐ Classified ☒ Unclassified ☐ Shipped Under DOE Contract ☐ Shipped Under Contractor's Use Permit Contract

Necessity for the Off-Site Use of this Property

SAMPLES REQUIRE ANALYSIS THAT ARE NOT PRESENTLY AVAILABLE AT THIS SITE.

COC # 03033

BILL OF LADING # 252-1567917

CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.

RM Clearance for Public Release	RM Survey No	Date
Location of Property (Area & Bldg.) 200 WEST AREA/202-S	Contact L. A. Guerra	Phone (509)373-1907
Date Ready for Shipment 09/25/92	Cost Code to be Charged P3CIG/ORG CODE: 12410	Approximate Date This Property will be Returned N/A
Originated By L. A. Guerra	Date 09/25/92	Authorized By R. A. Mezmarich
Signature and Name of Property Control	Custodian Date	Property Management Approval Date 9/25/92

PART II - TO BE COMPLETED BY SHIPPING

Signature of Recipient <i>[Signature]</i>	Return Order No.	Date Issued	Purchase Order No.	Date Issued
Date 9-25-92 1400				

DISTRIBUTION

By Originator White, Green, Yellow, Pink - Property Management Goldenrod - Retain	Shipping Operation - Sign all Copies and Forward to: White - Property Management Green - Property Control Custodian (Issuing Office) Yellow - Retain Pink - Originator
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## FORM OF PAYMENT

☐ Bill to Consignee ☐ Third Party Billing ☐ FOCOD ☐☐ Bill to Consignee ☐ Third Party Billing ☐Shipper's Account Number  
950281585**EMERY**  
**WORLDWIDE**

## SERVICES\*\*

UNITED STATES &amp; CANADA

☐ Same Day (Extra Charge)☐ AM☐ Second Day☐☐☒☐☐Express ☐Standard Plus ☐Preferred ☐Standard ☐

INTERNATIONAL

Express ☐Standard Plus ☐Preferred ☐Standard ☐

Date

09-25-97

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ROY F. WESTON, INC.  
LIONVILLE ANALYTICAL LABORATORY  
ANALYTICAL CASE NARRATIVE

Client : WESTINGHOUSE HANFORD  
RFW #: 9209L050

W.O. #: 6168-02-01  
Date Received: 09-26-92

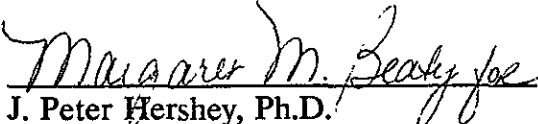
**CLP METALS**

One (1) soil sample was collected on 09-24-92.

The sample and its associated QC samples were analyzed according to criteria set forth in CLP SOW 3/90.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analysis:

1. ICVs, CCVs, and LCSs stock standards were purchased from Inorganic Ventures Laboratory.
2. All ICV and CCV values were within control limits.
3. All ICB and CCB values were within control limits.
4. All preparation blank values were within control limits.
5. All LCS results were within the 80-120% control limits.
6. All matrix spike recoveries were within the 75-125% control limits with the exceptions of manganese and thallium. All exceptions are flagged with a "N" on the CLP forms.
7. All duplicate analyses were within the 20% RPD control limit.
8. Quarterly Detection Limits, ICP Interelement Correction Factors and ICP Linear Ranges for IC3 are included in this package, but do not appear on EDD:
9. The graphite furnace time that appears on form XIV is the time of the first injection. The time that appears on the data is the print time.

  
J. Peter Hershey, Ph.D.  
Laboratory Manager  
Lionville Analytical Laboratory

11/6/92  
Date

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**ROY F. WESTON, INC.**  
**LIONVILLE ANALYTICAL LABORATORY**  
**ANALYTICAL CASE NARRATIVE**

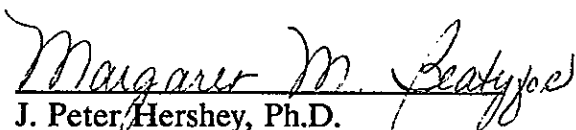


**Client:** WESTINGHOUSE HANNFORD  
**RFW #:** 9209L050

**W.O. #:** 6168-02-01  
**Date Received:** 09-26-92

**CLP METALS ADDENDUM**

1. Following Exhibit E, Section V, Item 10, page E-23 of the USEPA Statement of Work for Inorganics Analysis, Document Number ILM02.0 ICP Instrument Detection Limits (IDLs) are reported for two (2) ICP instruments. The instrument identification numbers are "IC1" and "IC3". The highest IDL for the two instruments is used for reporting concentration values in this sample data package.
2. A discrepancy exists between raw data and Form XIVs analytical spikes recovery calculations performed for graphite furnace AA analytes. Instrument software calculates spike recoveries based on absolute values below the IDL for sample results. This is hard-coded by the vendor and is currently not correctable. CLP convention (SOW ILM02.0, Exhibit E, Section V, Item 6, page E-20) requires that when values fall below the IDL, the sample result is equal to zero (0) for the purposes of calculating the percent recovery. The Form XIVs contain the correct calculation.

  
J. Peter Hershey, Ph.D.  
Laboratory Manager  
Lionville Analytical Laboratory

11/6/92  
Date

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ROY F. WESTON INC.

INORGANIC PRECISION REPORT 11/05/92

CLIENT: WESTINGHOUSE HANFORD

WESTON BATCH #: 9209L050

WORK ORDER: 06168-002-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	%RPD
=====	=====	=====	=====	=====	=====
-001REP	BO1925	Silver, Total	2.0 u	2.0 u	NC
		Aluminum, Total	3730	4190	11.7
		Arsenic, Total	2.0 u	2.0 u	NC
		Barium, Total	43.8	43.8	0.00
		Beryllium, Total	1.0 u	1.0 u	NC
		Calcium, Total	4970	5090	2.5
		Cadmium, Total	1.0 u	1.0 u	NC
		Cobalt, Total	10.2 u	10.2 u	NC
		Chromium, Total	4.4	5.9	29.1
		Copper, Total	12.3	13.0	5.5
		Iron, Total	9530	11500	18.5
		Potassium, Total	1020 u	1020 u	NC
		Magnesium, Total	2770	3280	16.6
		Manganese, Total	216	250	14.5
		Sodium, Total	1020 u	1020 u	NC
		Nickel, Total	8.9	8.1 u	NC
		Lead, Total	2.4	2.4	0.00
		Antimony, Total	12.2 u	12.2 u	NC
		Selenium, Total	1.0 u	1.0 u	NC
		Thallium, Total	2.0 u	2.0 u	NC
		Vanadium, Total	13.6	17.2	23.4
		Zinc, Total	27.1	29.5	8.5

0000012

ROY F. WESTON INC.

## INORGANIC DATA SUMMARY REPORT 11/05/92

CLIENT: WESTINGHOUSE HANFORD  
WORK ORDER: 06168-002-001-9999-00

WESTON BATCH #: 9209L050

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
=====	=====	=====	=====	=====	=====
-001	BO1925	Silver, Total	2.0 u	MG/KG	2.0
		Aluminum, Total	3730	MG/KG	40.6
		Arsenic, Total	2.0 u	MG/KG	2.0
		Barium, Total	43.8	MG/KG	40.6
		Beryllium, Total	1.0 u	MG/KG	1.0
		Calcium, Total	4970	MG/KG	1020
		Cadmium, Total	1.0 u	MG/KG	1.0
		Cobalt, Total	10.2 u	MG/KG	10.2
		Chromium, Total	4.4	MG/KG	2.0
		Copper, Total	12.3	MG/KG	5.1
		Iron, Total	9530	MG/KG	20.3
		Potassium, Total	1020 u	MG/KG	1020
		Magnesium, Total	2770	MG/KG	1020
		Manganese, Total	216	MG/KG	3.0
		Sodium, Total	1020 u	MG/KG	1020
		Nickel, Total	8.9	MG/KG	8.1
		Lead, Total	2.4	MG/KG	0.61
		Antimony, Total	12.2 u	MG/KG	12.2
		Selenium, Total	1.0 u	MG/KG	1.0
		Thallium, Total	2.0 u	MG/KG	2.0
		Vanadium, Total	13.6	MG/KG	10.2
		Zinc, Total	27.1	MG/KG	4.1

1  
INORGANIC ANALYSIS DATA SHEET

BO1925

Lab Name: ROY F. WESTON, INC - L372 Contract: 6168-02-01

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP050

Matrix (soil/water): SOIL Lab Sample ID: 920905001

Level (low/med): LOW Date Received: 9/28/92

% Solids: 98.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3730.00	—		P
7440-36-0	Antimony	12.20	U		P
7440-38-2	Arsenic	.93	B		F
7440-39-3	Barium	43.80			P
7440-41-7	Beryllium	.20	U		P
7440-43-9	Cadmium	1.42	U		P
7440-70-2	Calcium	4970.00			P
7440-47-3	Chromium	4.40			P
7440-48-4	Cobalt	6.30	B		P
7440-50-8	Copper	12.30			P
7439-89-6	Iron	9530.00			P
7439-92-1	Lead	2.40			F
7439-95-4	Magnesium	2770.00			P
7439-96-5	Manganese	216.00		N	P
7439-97-6	Mercury				NR
7440-02-0	Nickel	8.90			P
7440-09-7	Potassium	665.00	B		P
7782-49-2	Selenium	.41	U	W	F
7440-22-4	Silver	2.03	U		P
7440-23-5	Sodium	138.00	B		P
7440-28-0	Thallium	.41	U	NW	F
7440-62-2	Vanadium	13.60			P
7440-66-6	Zinc	27.10			P
	Cyanide				NR

Color Before: BROWN

Clarity Before:

Texture: FINE

Color After: BROWN

Clarity After:

Artifacts:

Comments: